



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/502,543

07/27/2004

Peng Zhou

56815-0200

7543

30734 7590 02/22/2008  
BAKER & HOSTETLER LLP  
WASHINGTON SQUARE, SUITE 1100  
1050 CONNECTICUT AVE. N.W.  
WASHINGTON, DC 20036-5304

EXAMINER

BENGZON, GREG C

ART UNIT

PAPER NUMBER

2144

MAIL DATE

DELIVERY MODE

02/22/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/502,543	<b>Applicant(s)</b> ZHOU ET AL.	
	<b>Examiner</b> Greg Bengzon	<b>Art Unit</b> 2144	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 July 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/13/2004</u> .  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

This application has been examined. Claims 1-17 are pending.

#### ***Priority***

This application claims benefits of priority from Foreign Application 02100445.5 filed 01/30/2002 (CHINA).

The effective date of the claims described in this application is January 30, 2002.

#### ***Information Disclosure Statement***

The information disclosure statement (IDS) submitted on 10/13/2004 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-9,11-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukutomi (US Publication 2002/0091926) in view of Haggerty (US Patent 6331983) further in view of Dobbins (US Patent 5684800) as incorporated by reference in Haggerty.

Alternatively Claims rejected under U.S.C. 103(a) as being unpatentable over Haggerty (US Patent 6331983) in view of Dobbins in view of Fukutomi (US Publication 2002/0091926).

The Examiner notes that the invention is directed towards maintaining a table of VLAN ports authorized to receive multicast packets.

Fukutomi disclosed (re. Claim 1) a controlled multicast system, including an Ethernet switch and a multicast router, where the Ethernet switch connects with each host in a downlink, connects with the multicast router in an uplink, the multicast router connects with a multicast router of other systems in the uplink, the Ethernet switch implementing multicast exchange of a layer 2, an IGMP V2 protocol is adopted as group management protocol between the Ethernet switch and the host of the user; wherein the controlled multicast system further comprises:

a portal server, connecting with the multicast router and providing an interface of user access authentication; and (Fukutomi-Figure 9, '*delivery accept server*')

an authentication server, storing configuration of privilege for the host which wants to join in the multicast group; (Fukutomi-Figure 9, '*authentication server*')

the multicast router (Fukutomi-Figure 9, '*PE router*') and the authentication server adopting a Client-server structure by which the authentication server authenticates identification of the host to join in a multicast group with information inputted through the interface provided by the portal server, and the multicast router records a User ID and a corresponding router (Fukutomi-Figure 11, Figure 16, Paragraph 80-84, Paragraph 70) and then distributes control commands according to results of the authentication to control multicast forwarding operations of the Ethernet switch. (Fukutomi-Figure 9, '*CE router*')

While Fukutomi substantially disclosed the claimed invention Fukutomi did not disclose (re. Claim 1) recording a corresponding vlan ID of the authenticated host.

Haggerty-Dobbins disclosed a multicast system implemented using IGMP messaging. (Haggerty-Column 4 Lines 55-65) Furthermore Dobbins disclosed a multicast forwarding table implemented in a VLAN Ethernet switch such that multicast packets are sent only to ports defined for a particular VLAN. (Dobbins-Column 2 Lines 50-65)

Haggerty-Dobbins disclosed (re. Claim 1) recording a corresponding vlan ID of the authenticated host. (Haggerty-Column 25 Lines 45-65, Dobbins-Column 7 Lines 20-40).

Fukutomi, Haggerty-Dobbins are analogous art because they present concepts and practices regarding secure multicasting using IGMP. At the time of the invention it would have been obvious to a person of ordinary skill in the networking art to combine Haggerty-Dobbins into Fukutomi. The motivation for said combination would have been to enable multicasting to VLANs. (Haggerty-Column 25 Lines 45-60).

Fukutomi-Haggerty-Dobbins disclosed (re. Claim 2) a RADIUS+ protocol extended from a RADIUS (Remote Authentication Dial In User Service) protocol is adopted as communication protocol between the multicast router and the authentication server. (Fukutomi-Paragraph 117)

Fukutomi-Haggerty-Dobbins disclosed (re. Claim 3) wherein the authentication server is an AAA (authorization and Authentication) server. (Fukutomi-Figure 9, *'authentication server'*)

While Fukutomi substantially disclosed Claim 4, Fukutomi did not disclose creating Join messages and Leave messages.

Haggerty-Dobbins disclosed (re. Claim 4) creating Join messages and Leave messages. (Haggerty-Column 8 Lines 15-25, Figure 17)

Fukutomi and Haggerty are analogous art because they present concepts and practices regarding secure multicasting using IGMP. At the time of the invention it would have been obvious to a person of ordinary skill in the networking art to combine Haggerty into Fukutomi. The motivation for said combination would have been to enable multicasting to VLANs. (Haggerty-Column 25 Lines 45-60).

Fukutomi-Haggerty-Dobbins disclosed (re. Claim 4) wherein configuration of privilege comprises a corresponding relation between the User ID of the host and an address of multicast group in which the host wants to join; (Fukutomi-Paragraph 85)

the information inputted through the interface provided by the portal server comprises the User ID and a password; each port through which the host is connected to the Ethernet switch is a vlan port; (Fukutomi-Figure 16)

wherein the authentication server in the system further for, after receiving an extended RADIUS authentication message from the multicast router, of which attributes include the User ID as the user name and the address of multicast group in which the host wants to join, detecting whether to accept the host joining in the multicast group based on the configuration of privilege; (Fukutomi-Paragraph 109-116)

responding with an acceptance message to the multicast router if the host has suitable privilege, otherwise returning a reject message; (Fukutomi-Paragraph 109-116)

wherein the multicast router in the system further for, after receiving an IGMP Membership Report message from the Ethernet switch, (Fukutomi-Paragraph 55) according to the vlan ID in the message, searching the corresponding User ID in a multicast access privilege table of the multicast router, and then sending the said extended RADIUS authentication message, to the authentication server: (Fukutomi-Paragraph 110-116)

after receiving the acceptance message from the authentication server, writing the address of the multicast group in which the host can join into the said multicast access privilege table, and

implementing a routine disposal on join messages of the host, then generating a Join message, (Haggerty-Column 8 Lines 15-25) which comprises the vlan ID corresponding to the port that links with the host which wants to join in the multicast group, the address of the multicast group that is applied for, (Fukutomi-Paragraph 105) and a Join command field, and then transmitting to the Ethernet switch;

moreover, completing a routine processing of creating multicast forwarding tree on the IGMP Membership Report message; doing nothing after receiving the reject message; the Ethernet switch for, forwarding the IGMP Membership Report message from the host, wherein the IGMP Membership Report message forwarded to the multicast router port carries with the vlan ID of the host;

after receiving the Join message from the multicast router, searching the MAC address corresponding to the address of the multicast group in the forwarding table; (Haggerty-Column 15 Lines 45-65) if the entry corresponding with the MAC address is



found, obtaining the port number of the host via searching in the forwarding table with the vlan ID in the Join message, (Haggerty-Column 16 Lines 50-65) and then adding the port number into the said entry; (Fukutomi-Paragraph 66-67) if nothing is found, adding an entry in the forwarding table, which comprises the MAC address corresponding to the multicast address, the port number of the host which applies to join in the multicast group, and the port number of the multicast router connected with the Ethernet switch; after receiving a multicast flow from the multicast router, forwarding it to ports of the Ethernet switch with the current forwarding table. (Fukutomi-Paragraph 72)

Fukutomi-Haggerty-Dobbins disclosed (re. Claim 5) wherein the multicast router in the system further for, after receiving an IGMP Leave message, (Haggerty-Column 31 Lines 50-65) extracting the vlan ID from the message, and obtaining corresponding entry in the multicast access privilege table via searching with the vlan ID, then deleting the address of the multicast group indicated by the IGMP Leave message in the entry; (Haggerty-Figure 13, Column 30 Lines 10-35)

after completing a routine disposal on leave messages of the host, generating a Leave message and sending to the Ethernet switch, which includes the vlan ID of the host which wants to leave the multicast group, the address of multicast group where the host wants to leave and a Leave command field;

the Ethernet switch further for, after receiving the Leave message from the multicast router, obtaining the entry through looking up the forwarding table with the MAC address corresponding to the multicast address of the multicast group, and getting the port number of the host with the vlan ID in the Leave message, and then deleting the said port number from said entry. (Haggerty-Figure 13, Column 30 Lines 40-55)

Fukutomi-Haggerty-Dobbins disclosed (re. Claim 6) wherein the multicast router in the system further for, after knowing offline status of the host, (Haggerty-Column 29 Lines 40-55) actively generating the Leave message and sending to the Ethernet switch; moreover terminating the multicast flow transmission.

Claims 7-9,11 are rejected on the same basis as Claims 1-6.

Fukutomi-Haggerty-Dobbins disclosed (re. Claim 7) a method for implement a controlled multicast, comprising: A. in advance, according to ports of an Ethernet switch, classifying vlan with one vlan for each port, and linking one port to the host; making access authentication for a host which wants to join in a multicast group, if the authentication is successful, executing step B, otherwise ending; B. forwarding an IGMP Membership Report message from the host by the Ethernet switch; C. detecting

whether to accept the host joining in the multicast group, if it is, generating a Join message to control establishing of an entry in a forwarding table of the Ethernet switch by a multicast router, and forwarding a multicast flow from the multicast router according to the current forwarding table by the Ethernet switch; otherwise ending.

Fukutomi-Haggerty-Dobbins disclosed (re. Claim 8) forwarding an IGMP Leave message from the host by the Ethernet switch; generating a Leave message to control deleting the entry of the host in the forwarding table after the multicast router receives the IGMP Leave message. (Haggerty-Column 31 Lines 50-65)

Fukutomi-Haggerty-Dobbins disclosed (re. Claim 9) actively generating the Leave message to control deleting the entry of the host in the forwarding table by the multicast router once knowing offline status of the host, and terminating the multicast flow transmission. (Haggerty-Column 31 Lines 50-65)

Fukutomi-Haggerty-Dobbins disclosed (re. Claim 12) deleting the entry of the host in the forwarding table further comprises, if the deleted port is the solely port of the said entry in the forwarding table, further deleting the whole entry. (Haggerty-Column 24

Art Unit: 2144

Lines 30-45)

Fukutomi-Haggerty-Dobbins disclosed (re. Claim 13) adopting a vlan protocol between the multicast router port and the Ethernet switch. (Dobbins-Column 3 Lines 5-15)

Fukutomi-Haggerty-Dobbins disclosed (re. Claim 14) filtering data messages send by a multicast sender with a multicast Access Control List (ACL) through the first receiver among the multicast routers, and forwarding the data messages that satisfy the requirements in the ACL to the multicast tree. (Haggerty-Column 21 Lines 45-65, Fukutomi-Figure 2 , Paragraph 127)

Fukutomi-Haggerty-Dobbins disclosed (re. Claim 15) wherein the multicast ACL comprises a command word, a source address and a group address. (Haggerty-Column 21 Lines 45-65, Fukutomi-Figure 2, Paragraph 127)

Fukutomi-Haggerty-Dobbins disclosed (re. Claim 16) wherein the multicast ACL is distributed to each multicast router by a centralized multicast service control server;

Art Unit: 2144

meanwhile the multicast service control server is also acts as the authentication server.

(Fukutomi-Paragraph 127)

Fukutomi-Haggerty-Dobbins disclosed (re. Claim 17) wherein the multicast ACL can also be distributed by a centralized policy server or a network manager. (Fukutomi-Paragraph 127)

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukutomi (US Publication 2002/0091926) in view of Haggerty (US Patent 6331983) further in view of Dobbins (US Patent 5684800) as incorporated by reference in Haggerty further in view of Hirata (US Publication 20020138575).

While Fukutomi-Haggerty-Dobbins disclosed substantially disclosed the claimed invention, Fukutomi-Haggerty-Dobbins did not disclose (re. Claim 10) inputting information including the User ID and a password through an interface provided by a portal server.

Hirata disclosed (re. Claim 10) inputting information including the User ID and a password through an interface provided by a portal server, and authenticating identification of the host with the information by the authentication server. (Haggerty-Paragraph 53)

Fukutomi-Haggerty-Dobbins and Hirata are analogous art because they present concepts and practices regarding secure multicasting. At the time of the invention it would have been obvious to a person of ordinary skill in the networking art to combine Hirata into Fukutomi-Haggerty-Dobbins. The motivation for said combination would have been to enable the client to select a plurality of transmission destinations as the client desires. (Hirata-Paragraph 20)

### ***Conclusion***

**Examiner's Note:** Examiner has cited particular columns and line numbers in the references applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

In the case of amending the claimed invention, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s) the structure relied on for proper interpretation and also to verify and ascertain the metes and bounds of the claimed invention.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Please refer to the enclosed PTO-892 form.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Greg Bengzon whose telephone number is (571) 272-3944. The examiner can normally be reached on Mon. thru Fri. 8 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Vaughn can be reached on (571)272-3922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2144

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/G. B./  
Examiner, Art Unit 2144

/William C. Vaughn, Jr./  
Supervisory Patent Examiner, Art Unit 2144